

INITIAL SITE EVALUATION FOR  
AMERICAN CHEMICAL SERVICE, INC.,  
GRIFFITH, INDIANA  
U.S. ENVIRONMENTAL PROTECTION AGENCY  
REGION V

Work Assignment No.: 61-5LJ7.0  
Document Number: 160-WP1-RT-AVJD-1

March 1985

**\*\*COMPANY CONFIDENTIAL\*\***

Prepared by:

Roy F. Weston, Inc.  
Bannockburn, Illinois

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environmental engineers, scientists,  
planners, & management consultants

CAMP DRESSER & McKEE INC.

11 East Adams Street, Suite 1500  
Chicago, Illinois 60603  
312 786-0253

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April 2, 1985

Mr. Richard Bartelt  
Regional Project Officer  
U.S. Environmental Protection Agency  
230 South Dearborn Street  
Chicago, Illinois 60604

Mr. Rodney Gaither  
Remedial Project Manager  
U.S. Environmental Protection Agency  
230 South Dearborn Street  
Chicago, Illinois 60604

Subject: Initial Site Evaluation (Site 160)  
American Chemical Service, Griffith, Indiana

Work Assignment No.: 61-5LJ7.0

EPA Contract No.: 68-01-6939

Document No.: 160-WP1- -AWKW-1

Dear Messrs. Bartelt and Gaither:

Camp Dresser & McVee Inc. is pleased to submit this Initial Site Evaluation for the American Chemical Service, Inc. site located in Griffith, Lake County, Indiana.

This report summarizes the existing conditions at the American Chemical Service, Inc. site including site visit, site description, contamination problem definition, contaminant migration, data gaps and initial remedial measures. Also included are existing site maps.

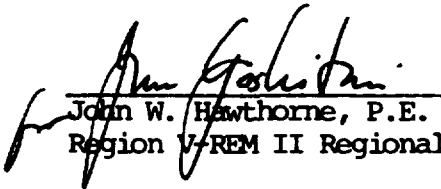
Mr. Richard Bartelt  
Mr. Rodney Gaither  
April 2, 1985  
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If you have any questions, please do not hesitate to call.

Very truly yours,

CAMP DRESSER & MCKEE INC.

ROY F. WESTON, INC.

  
John W. Hawthorne, P.E.  
Region V-REM II Regional Manager

  
James M. Burton, P.E.  
Site Manager

JWH/JMB:slr

Enclosure

cc: U.A. Joiner, Contracting Officer, U.S. EPA  
W.M. Kaschak, Project Officer, U.S. EPA  
N.M. Willis, Regional Coordinator, U.S. EPA

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## SECTION 1

### INTRODUCTION

#### 1.1 PURPOSE

This report has been prepared in accordance with the requirements of the Work Plan Memorandum for the American Chemical Service, Inc. (ACS) site in Griffith, Indiana (Document No. 160-WP1-WM-ARLB-1), and the Work Assignment for that site (No. 61-5LJ7.0). Its purpose is to summarize the existing conditions and background data for the site, to focus the development and implementation of a RI/FS program.

#### 1.2 SCOPE

This report includes summaries of six topic areas each discussed in separate sections:

- o Site visit
- o Site description
- o Contamination problem definition
- o Contamination migration and environmental/health effects
- o Discussion of data gaps
- o Initial remedial measures

The first section presents the observations made during the initial site visit (March 12, 1985) and discusses their implications for the RI/FS. The second section includes a review of the geographic, topographic, hydrologic, physiographic and geological setting of the American Chemical Service, Inc. site. It also includes a review of the site chronology including information concerning the site ownership, state and federal response/enforcement activities, correspondence and public concerns. The third section summarizes the wastes generated at the site and their ultimate disposal locations. This section also includes a discussion of the degree of site contamination. The fourth section discusses the contaminant migration pathways and potential contaminant receptors. Also discussed are potential environmental and public health effects. The fifth section discusses the data gaps that have been revealed based on a review of existing data as discussed in Section 2.1 through 2.4. Obtaining needed information will be one of the primary goals of the remedial investigation. The final section discusses any necessary initial remedial measures and need for a limited feasibility study.

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The information used to prepare the Initial Site Evaluation came from five major sources. Those sources are:

- o Initial site visit
- o U.S. EPA Region V files
- o Indiana State Board of Health files
- o City of Griffith, Indiana Department of Public Works files
- o Response to the U.S. EPA Request for Information sent to American Chemical Service, Inc. (October 18, 1984).

All references and documents cited in this report are maintained in the project file located at the WESTON office, Bannockburn, Illinois. Copies of most of the documents are also maintained at U.S. EPA Region V offices, Chicago, Illinois.

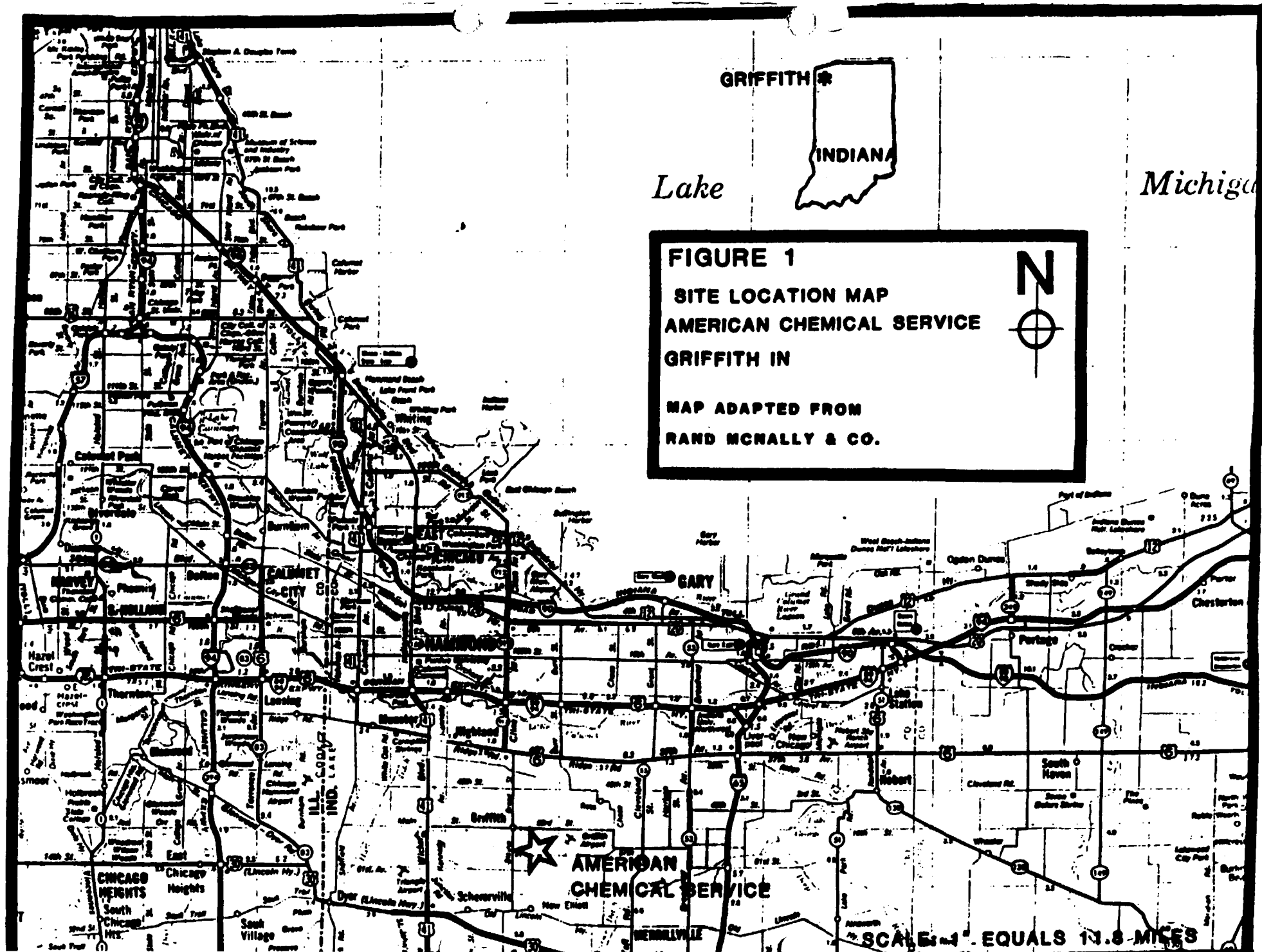
### 1.3 SITE LOCATION AND HISTORY

For the purpose of this report the site is defined as American Chemical Service, Inc., Pazmey Corporation (formerly Kapica Drum, Inc. and Griffith City Landfill (see Figures 1 and 2)).

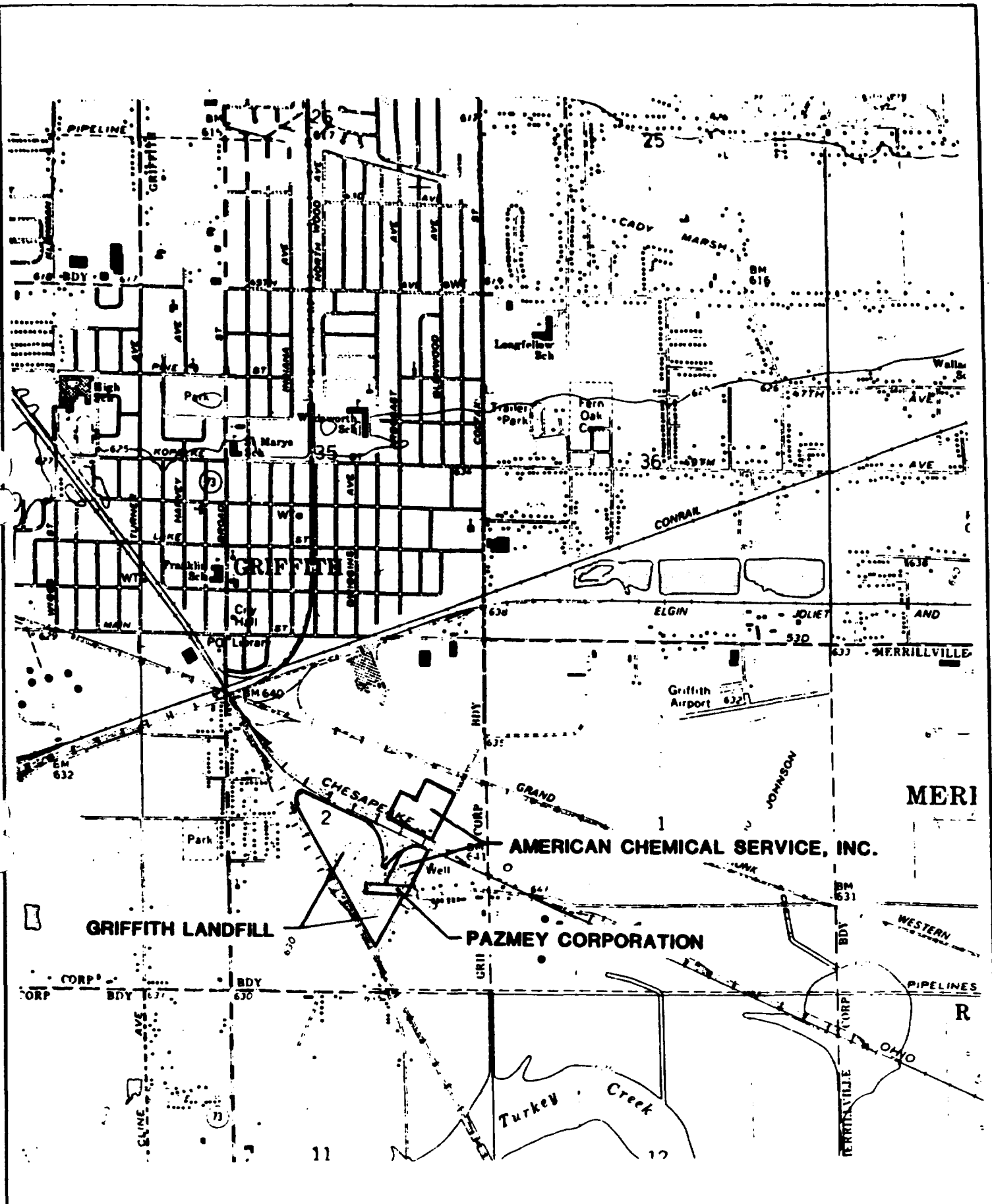
American Chemical Service, Inc. (ACS) is a solvent reclamation and chemical manufacturing facility located at 420 South Colfax Avenue, Griffith, Indiana. ACS began operations in May, 1955, solely as a solvent recovery firm. Later, the company also began limited chemical manufacturing. Mr. James Tarpo is president of ACS. Messrs. John and James Murphy are the firm's vice presidents.

The ACS solvent recovery process generates still bottom wastes which were originally deposited in the Still Bottoms Pond and Treatment Pond Number 1 located on the southern portion of the facility. In the 1960's, leaching and/or runoff from the pond area reportedly had caused vegetation kills in a marsh immediately to the west of the site. Operation of Still Bottoms Pond and Treatment Pond Number 1 was terminated in 1972. They were drained and filled in with partially full drums of sludge materials. A portion of Treatment Pond Number 1 may have been inundated when the present fire water pond was constructed in November, 1973. The fire pond is located at the southwestern corner of the facility and stores water for fire control purposes.

From 1958 to 1975, ACS operated a small landfill known as the Off-site Containment Area on a piece of property directly south of their plant. Throughout its operation, the Off-site Containment Area was utilized for the disposal of a variety of wastes generated at the ACS







FROM: USGS TOPO HIGHLAND, IN. QUADRANGLE

FIGURE 2 DETAILED SITE LOCATION MAP AMERICAN CHEMICAL SERVICE, INC.

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plant. Originally, the still bottoms from the aforementioned ponds were disposed of in this containment area. From 1968 to 1970, ACS operated an incinerator at their facility and wastes from the incinerator were also deposited in the containment area during this period. In addition to these wastes, general refuse and an estimated 20,000 to 30,000 drums were deposited in the containment area prior to its closure. These drums reportedly were either empty or partially full of unreclaimable wastes. A tank truck partially full of sludge material, was also buried in the containment area. ACS reports that leachate problems have been associated with the containment area since the 1960's, but have steadily decreased over the years.

In 1972, ACS discontinued use of its Off-site Containment Area and the site was capped with a reported two to three foot layer of soil. In 1980, a 31-acre portion of property owned by ACS to the west of the containment area was sold to the City of Griffith. The city used this property for an expansion of their municipal landfill, which had been operating to the southwest of the ACS property. This transaction reportedly included strip of the west edge of the containment area. As previously mentioned, ACS began operation of an incinerator at their plant in 1968. Mr. Tarpo has reported a rate of 2 million gallons of ACS and off-site waste per year were burned in this incinerator prior to its closure of 1970.

In October, 1971, ACS began a swine fat reprocessing operation. Due to its economic liability to the firm, it was terminated in April, 1973. In May, 1972, a production line was opened for the manufacturing of a gasoline additive for the American Oil Company, referred to as "Amotone." In early 1974, ACS began manufacturing a plasticizer called "Epoxxol" for the Swift Chemical Division. Both materials are currently being manufactured at the facility. Since 1983, "Epoxxol" has been produced by ACS for its own distribution. The major operation at the site, however, remains solvent recovery. Aqueous wastes generated at the facility are reported to be disposed of off site.

The Griffith Landfill has been in operation since the 1950's. It has been included in the site because it has been reported (Reply to U.S. EPA Request For Information sent to ACS-10/18/84) that hazardous wastes from American Chemical Services, Inc. and Kapica Drum, Inc. were disposed of in the landfill prior to the implementation of RCRA.

Kapica Drum, Inc. (now Pazmey Corporation under new ownership) had been in operation since 1951. The business of Kapica Drum, Inc. was drum reconditioning which resulted in rinse water from drums that contained hazardous wastes. It has been included in the site because it has been reported (Reply to U.S. EPA Request For Information sent to ACS-10/18/84) that hazardous waste drum rinse water has been discharged on the Kapica Drum, Inc. property.

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#### 1.4 SITE STATUS AND PROJECT TYPE

American Chemical Service, Inc., is an actively operated facility. The 1983 notifier's listing notes treatment, storage and disposal activities at the site. American Chemical Service, Inc.'s EPA I.D. number is IND016360265. The June, 1983 Hazard Ranking System scores were as follows:

- |                              |       |
|------------------------------|-------|
| 1) Groundwater Route Score   | 59.86 |
| 2) Surface Water Route Score | 8.89  |
| 3) Air Route Score           | 0     |
| 4) Overall Average Score     | 34.98 |

American Chemical Service, Inc., is an enforcement lead site.

## SECTION 2

### INITIAL SITE EVALUATION

#### 2.1 SITE VISIT

On March 12, 1985 members of the REM II project team (Jim Burton and Ed Need) met with representatives of the U.S. EPA (Rodney Gaither) and Indiana State Board of Health (Wallace Turner) to visit the American Chemical Service, Inc. site. The purpose of the visit was to become familiar with site topography, access routes and proximity of receptors to possible contamination, collect data for preparation of the site health and safety plan and verify information gathered during the review of existing data. In addition to visiting the American Chemical Service, Inc. site, two adjacent properties were visited and the owners interviewed. The schedule of events during the March 12 site visit was as follows:

- 8:30 AM-10:00 AM Meeting with Mr. Glen Reyome,  
Director of Public Works, Griffith,  
Indiana.
- 10:00 AM-2:00 PM Meeting with Mr. James Tarpo,  
President of American Chemical  
Service, Inc. and Mr. John Murphy,  
Vice President of American Chemical  
Service, Inc.
- 2:00 PM-2:30 PM Meeting with Mr. Bob Pazdro, owner of  
Pazmey Corporation.
- 2:30 PM-3:30 PM Out briefing between members of the  
REM II project team, Rodney Gaither  
and Wallace Turner to discuss the  
day's events and future activities.

During the meeting with Mr. Reyome the topics of discussion included 1) property ownership, 2) soil information, 3) disposal of hazardous waste from American Chemical Service and Kapica Drum, Inc. Mr. Reyome was asked if he was aware of how much of the ACS Off-site Containment Area is on the property that the Town of Griffith purchased from ACS. He stated that he was not aware that any of the Off-site Containment Area is on Town of Griffith property. Mr. Reyome was able to provide information concerning soil borings conducted at the landfill. When asked if the landfill has ever disposed of hazardous wastes from American Chemical Service, Inc. or Kapica Drum, Mr. Reyome stated that he did not think the landfill had ever accepted hazardous waste. However he stated that he could not state they definitely had not accepted hazardous waste. Mr. Reyome stated that if the landfill had accepted hazardous wastes it would be buried in the

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earlier parts of the landfill and indicated that most likely area on a landfill map.

Following our discussion with Mr. Reyome, he drove us to the landfill so that we could get a feel for the area. While at the landfill Ed Need took the opportunity to observe the soils at the face of the open excavation.

After leaving the landfill we met with Mr. Tarpo and Mr. Murphy of American Chemical, Inc. We spent approximately 1½ hours discussing questions that we had concerning information in the ACS response to the U.S. EPA Request for Information. During our meeting Mr. Tarpo discussed concern that he be allowed access to information gather as part of our investigations. Following our meeting Mr. Tarpo and Mr. Murphy took us on a site tour. During the tour we looked at each hazardous waste disposal site revealed during the review of existing information. The Old Still Bottoms Pond, Old Treatment Pond Number 1 and the On-site Containment Area were easily located.

The Still Bottoms Pond and Old Treatment Pond Number 1 are raised areas due to their previous filling. Both of these sites are graveled over and portions of these areas had structures built on them. Nothing unusual (leachate, etc.) was observed at the sites. The On-site Containment Area is flush with the site grade, however, exposed rusted drums made the site easy to locate. Again, nothing unusual was noted at this site.

Finally we looked at the Off-site Containment Area. This area was also easily located. As we approached from the northeast the site appears as a mound approximately 12-15 feet high. We climbed the side of the mound and stood on top. The general overall dimensions of the fill area are discernable from the top but are not well defined. The site had a well established vegetation cover. There were no signs of leachate. One item of note was a wooden surveying stake located on top of the fill area. Mr. Tarpo stated that this was the Griffith Landfill property boundary. If this is true, approximately 30-40 feet of the Off-site Containment Area is located on Griffith Landfill property.

Finally we went to the Pazmey Corp. property (formerly Kapica Drum, Inc.) to speak to the owner, Mr. Bob Pazdo. Mr. Pazdo invited us in to look at whatever we wanted to. He seemed unsure about our purpose for the visit. While on the property we looked at the area that is suspected of being used to dispose of drum rinse water. Nothing unusual was noted except for scattered dried chunks of paint. Mr. Pazdro stated on several occasions that he does not have any first hand knowledge of any activities conducted by Kapica Drum Inc. and that he does not handle any drums that contained hazardous waste.

## 2.2 SITE DESCRIPTION

### 2.2.1 ENVIRONMENTAL SETTING

The American Chemical Service, Inc. facility is located  $\frac{1}{2}$  mile southeast of Griffith in the northeast  $\frac{1}{4}$  of the southeast  $\frac{1}{4}$ , Section 2, Township 35 north, Range 9 west, Lake County, Indiana. It is bordered by the Griffith Landfill on the southwest and Pazney Corporation (formerly Kapica Drum, Inc.) on the south. The Chesapeake and Ohio Railroad bisects the site. Elevations range from 635 feet to 650 feet, and bedrock elevations from 500 feet to 525 feet.

Griffith is located in the Calumet Lacustrine Plain, an area of high population and industrial use in extreme western Indiana. There are 40-250 feet of Wisconsinian Age Surficial deposits that comprised the bed of Glacial Lake Chicago. Calumet Lacustrine Plain is an area of low relief with three relict shorelines containing dunes (some up to 40 ft. high). Bedrock is 4000 feet of Cambrian to Devonian Age limestones, dolomite, sandstones, and shales overlying Pre-Cambrian Granitic basement rock. The Detroit River and Traverse Formations, comprised of limestone (some Karst) underly the town of Griffith.

The sedimentary rocks are gently flexed to form a saddle-like structure of part of the Kankakee Arch. Dip is 5-7 feet/mile to southeast. Drainage of surface waters in Griffith is to the north and the Little Calumet River is the major drainageway. The sediments of the Calumet Lacustrine Plain are fine lake silts and clays, paludal deposits of muck and peat, great expanses of beach and dune sand as out-wash and in till inclusions, and clay-rich tills. The three beach ridges in the area were formed as falling lake levels in Glacial Lake Chicago stabilized slightly after the Valparaiso Moraine was breached. Each beach ridge formation was accompanied by near-shore foredunes.

Three aquifers occur in the glacial deposits of Lake County and the depth to the potentiometric is about 15 feet. The uppermost is the Calumet Aquifer, a thin, unconfined layer of fine sand 5- to 75-ft. thick (averaging 20-feet thick). It is not used extensively because it cannot sustain high pumpage wells due to its usually thin saturated thickness. Under the Calumet Aquifer is a 50-foot thick layer of clay-rich till. Water in the Calumet Aquifer is potable and of good quality, but is susceptible to contamination.

The Valparaiso Aquifer, underlying the thick clay layer, is 10- to 90-feet thick and is confined. Pumping rates are  $7 \times 10^{-3}$  gal/day/ft<sup>2</sup>. It is hydraulically connected to the Kankakee Aquifer to the south.

In general, the sediments underlying Griffith contain a great reservoir of fresh water in them and also have a great potential for contamination (Indiana DNR, 1975). Griffith is in an area that is considered not suitable for landfills and poor for settling ponds without severe preparatory and operational adjustments.

### 2.2.2 SITE GEOLOGY AND HYDROGEOLOGY

Surficial deposits at the site are 100 to 300 feet of unconsolidated glacial deposits. They are subdivided into four units.

Unit 1, the Calumet Aquifer, (uppermost), is 10 to 27 feet of medium to coarse silty sand with interbedded beach gravels. Hydraulic conductivities in Unit 1 range from  $2.8 \times 10^{-3}$  cm/sec to  $4.7 \times 10^{-2}$  cm/sec with an average of  $2.1 \times 10^{-2}$  cm/sec. The transmissivity coefficient is 22 cm<sup>2</sup>/sec. The groundwater is unconfined and at a depth of 16 to 22 feet in the southern one-third of the site, and three feet in the northern two-thirds. Flow is to the northeast.

Unit 2 is a silty clay, 15- to 30-feet thick, with thin, discontinuous interbedded gravel and an average hydraulic conductivity of  $3.3 \times 10^{-7}$  cm/sec. It is considered to be a semi-confining layer.

Unit 3, the Valparaiso Aquifer, is a sand layer at an average depth of 40 feet below ground surface. The hydraulic conductivity ranges from  $9.4 \times 10^{-3}$  cm/sec to  $4.7 \times 10^{-2}$  cm/sec and the transmissivity is 34.5 to 70 cm<sup>2</sup>/sec. It has a storage coefficient of 0.003 and is partially confined. Flow is to the northwest.

Unit four, which directly overlies the bedrock, is a confining layer of clay till. Borings on-site, however, indicate absence of Unit 4, with sand and gravel from 24 feet to 130 feet, the depth at which bedrock is encountered.

The two major soils in the area are the Plainfield fine sand and the Maumee loamy fine sand with average hydraulic conductivities of  $1.42 \times 10^{-2}$  cm/sec.

(All preceding text from an Office Memorandum from Jim King to Lake County, August 15, 1978.)

### 2.2.3 SITE CHRONOLOGY

The purpose of the site chronology is to present an overview of the site history and provide the reader with a sense of the site history.

For clarity, the site chronology has been divided into several categories, which in some cases run concurrent with one another. The site chronology categories are listed below:

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- o American Chemical Service, Inc. Property Ownership History
- o Indiana State Board of Health Site Inspections/Activities and Correspondence Concerning American Chemical Service, Inc.
- o U.S. EPA Region V Site Inspections/Activities and Correspondence Concerning American Chemical Service, Inc.
- o Correspondence From and To American Chemical Service, Inc.
- o Correspondence From the Congress of the United States and Indiana State Legislature Concerning American Chemical Service, Inc.
- o Chronology of Newspaper Articles Concerning American Chemical Service, Inc.
- o Chronological Summary of American Chemical Service, Inc. On-site Events

The information found in each site chronology category came from one or more of the following sources:

- o U.S. EPA Region V Files
- o Indiana State Board of Health Files
- o City of Griffith, Indiana Department of Public Works Files
- o Response to the U.S. EPA Request for Information Sent to American Chemical Service, Inc. (October 18, 1984).

#### 2.2.3.1 Site Ownership Chronology

The following chronology of property ownership is based on the American Chemical Service, Inc. reply to the October 18, 1984 United States Environmental Protection Agency, Region V Request For Information. Document numbers referenced in the following discussion are those of the attachments to the response to the U.S. EPA Region V request for information. Refer to Map 1 for relative property location.

<u>Location</u>	<u>Period</u>	<u>Ownership Status</u>	<u>Reference</u>
Area 1 (8.74 acres)	1955-Nov. 1967	Leased by American Chemical Service From Chesapeake and Ohio Railway Company	Response to the U.S. EPA Request for Information to American Chemical Service, Inc. (October 18, 1984).



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<u>Location</u>	<u>Period</u>	<u>Ownership Status</u>	<u>Reference</u>
Area 1 (8.74 acres)	1967-Present	Colfax Chemical Sales Inc. purchased the 8.74 acres it had leased. (Colfax Chemical Sales Inc. merged with ACS on Sept. 3, 1978) (Document 3C)	Letter and attached Warranty Deed from M.L. Hawkins of the C&O Railway Company to G.R. Murphy, President of American Chemical Service, Inc. (September 18, 1967) (Document 3B)
Area 1A (1.0 acre)	Oct. 22, 1973 to June 17, 1983	Colfax Chemical Sales, Inc. sold 1.0 acre to Swift Chemical Co.	Warranty Deed (Oct. 22, 1973) (Document 3E)
	June 17, 1983 to Present	American Chemical Service, Inc. repurchases the 1.0 acre property from ESCHM, Inc.	Bill of Sale (June 17, 1983) (Document 3F)
Area 2 (39.277 acres)	Aug. 25, 1955-1961	Entire area owned by Edgar F. Seifert. ACS paid the taxes and used the land.	Lake County Title Company revenue stamp receipt. (Aug. 27, 1955) Lake County Trust Company purchased statement. Letter from E.F. Seifert (Documents G & 3H)
Area 2A (2.0 acres sub- divided from the 39.277 acres of Area 2)	1961-Feb. 1, 1980	John L. and Helen E. Kapica	(Document 3I)
	Feb. 1, 1980-Present	Robert Pazdro	Real Estate Contract (Document 3J)
Area 2B1	July 1, 1969 to June 1979	American Chemical Service, Inc. leased 16.284 acres to the Town of Griffith for use as a sanitary landfill.	Real Estate Lease (July 1, 1969) (Document 3L)

<u>Location</u>	<u>Period</u>	<u>Ownership Status</u>	<u>Reference</u>
Area 2B2 (31.277 acres)	Jan. 8, 1980 to Present	American Chemical Service, Inc. sold 14.993 acres (Area 2B2) in addition to the previously leased 16.284 acres (Area 2B1) to the Town of Griffith for use as a sanitary landfill. Total acreage sold to Town of Griffith was 31.277 acres.	Closing Statement and Corporate Warranty Deed (Jan. 8, 1980) (Document 3K)
Area 2C (6.0 acres)	August 25, 1955 to Present	Owned by American Chemical Service, Inc. through original August 25, 1955 purchase. This is the only remaining piece of the 39.277-acre tract that ACS still owns.	
Area 3 (4.03 acres)	July 1971 - Present	American Chemical Service, Inc. leased 4.03 acres from C&O Railway Company and B&O Railroad Company.	Letter and attached lease from Arthur C. Johnson of the C&O and B&O Railroads to J.T. Murphy of ACS (July 7, 1971) (Document 3D)

The maximum amount of property that has ever been under American Chemical Services, Inc. control since the company was founded in 1955 was 52.05 acres. Over the years the amount of property under ACS control has decreased as discussed in the previous chronology. In summary, 2.0 acres of the 39.277-acre tract south of the C&O railroad were sold to Mr. John Kapica and subsequently resold by Mr. Kapica to Mr. Pazdro. An additional 31.277 acres of the 39.277-acre tract south of the C&O railroad were sold to the City of Griffith to be used as a sanitary landfill. At the present time American Chemical Service, Inc. owns 6.0 acres of the original 39.277-acre tract south of the C&O railroad and 8.74 acres north of the C&O railroad for a total of 14.74 acres. In addition, ACS leases 4.03 acres north of the C&O railroad from the C&O railway company.

#### 2.2.3.2 Indiana State Board of Health Site Activity Chronology

April 13, 1972 is the earliest documentation concerning regulatory agency interest in the ACS site found during the review of existing

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data. Indiana State Board of Health (ISBH) interest in the ACS site during the period April, 1972 to September, 1973 centered around improved waste handling, spill prevention and site maintenance. ISBH interest in the ACS site during the period September, 1974 to September, 1975 is related to a charge that the company was discharging chemicals to the sanitary sewer and dumping chemicals on-site. There was very little ISBH activity concerning ACS during the period September, 1975 to December, 1982. The first step to list American Chemical Service, Inc. as a NPL site was taken on December, 1982 and continued through April, 1984 when data was supplied by Techlaw. A detailed chronology based on available information is presented below.

April 13, 1972	Mr. Richard Cleaton of ISBH made a routine site visit and observed a number of problems. ACS is installing a new chemical facility (amotone) for gasoline additives for American Oil Company.
May 12, 1972	Mr. Richard Cleaton of ISBH made a routine site visit and observed no dikes or pad provided for storage tanks in the incinerator area. ACS agreed to implement several measures recommended by ISBH.
June 20, 1972	Mr. Richard Cleaton of ISBH made a follow-up on inspection made on May 12, 1972 and found that approaches agreed upon during May inspection had not been implemented.
July 19, 1972	Mr. Richard Cleaton of ISBH made a routine visit for review of manufacturing process operations. ISBH sampled outfall from ACS to Turkey Creek marsh.
July 25, 1972	Mr. Richard Cleaton of ISBH visited the ACS site for sampling and also made observations at the site. ACS to make connection to the Griffith sewer system.
August 2, 1972	Mr. Richard Cleaton of ISBH visited ACS to collect samples. He also noticed that the old lagoon was filled with drums. The drums were not labeled.
March 13, 1973	Routine visit to the ACS site by Mr. Cleaton of ISBH. ISBH found that ACS had cleaned up drum storage area, incinerator and gasoline additive areas.

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April 4, 1973	Mr. Cleaton of ISBH made a routine visit to ACS. Found clean-up work was in progress and ACS promised to clean up lagoon. ACS shut down lard operations due to financial loss.
April 25, 1973	ISBH visit to ACS site regarding the new construction of facilities (EPONOL for Swift Chemicals) planned by ACS.
August 21, 1973	Mr. Cleaton of ISBH attends a Town of Griffith board meeting regarding ACS sewer connection to the Griffith-Hammond sewer system.
September 10, 1973	ISBH's routine visit to ACS and determined that ACS has progressed very well on the clean-up of site such as disposal of unsightly barrels, diking of tanks, etc. Construction of epoxy plant had started.
September 10, 1974	ISBH conducts an inspection of ACS based on a communication from the city Superintendent of Sewers and Sanitary Landfill that ACS is dumping a red organic material into the ditches. Inspection revealed no evidence of dumping.
October 4, 1974	Mr. Stevens, Chief of Industrial Waste Disposal Section of ISBH informs president of town board of Griffith, Indiana that ISBH is unable to confirm the discharge of red organic material to the ditches.
September 22, 1975	Mr. Love, Director of Division of Sanitary Engineering informs Mr. Galambos, Trustee, Town of Griffith, that ACS is not dumping chemicals on-site and would use on-site incineration or approved sanitary landfill for hazardous wastes.
April 12, 1976	Mr. Love, Director of Division of Sanitary Engineering of ISBH grants permission to the Gary Land Development Landfill to accept 25 cu. yd./day of paint sludges from ACS.
December 10, 1982	ISBH prepares an office memorandum based on a site visit to ACS on November 22, 1982 regarding information on Hazard Ranking System.
May 27, 1983	ISBH submits information to Mr. Bartelt, Remedial Response Branch, U.S. EPA Region V for

inclusion of ACS in the first Superfund  
National Priorities List (NPL).

May 31, 1983      Mr. Lamm, Director of Division of Land  
Pollution Control, ISBH informs ACS that their  
facility has been submitted to the U.S. EPA for  
inclusion on the National Priority List under  
CERCLA.

June 9, 1983      Mr. Lamm, Director of Division of Land  
Pollution Control, ISBH informs Mr. Reymoe,  
Director of Public Works, Griffith, Indiana  
that the State of Indiana has submitted ACS  
facility for inclusion on the National  
Priorities List.

August 1, 1983      State Health Commissioner of ISBH letter to Ms.  
Hall of U.S. Congress regarding ACS site's  
inclusion in the National Priorities List.

September 2, 1983      ISBH receives communication from U.S.  
EPA/Remedial Response Program regarding ACS  
site in the National Priorities List for  
Indiana.

September 15, 1983      ISBH's letter to Pazmey Corporation regarding  
inspection made on August 9, 1983. The  
inspection revealed that Pazmey Corp. is in  
violation of the Indiana Environmental Act  
IC13-7-4-1 due to the runoff of caustic  
material onto the soil from their wash  
building. The letter requested that Pazmey  
Corp. submit within 35 days steps taken to  
achieve compliance.

April 21, 1984      Mr. Richard Cleaton of the ISBH sent slides  
taken in August, 1972 to Ms. Keefe of Techlaw,  
Inc. The slides depict landfilling of drums at  
the ACS site.

#### 2.2.3.3 U.S. EPA Region V Site Activity Chronology

U.S. EPA activities concerning the American Chemical Service, Inc. site began in February, 1980 and continue to the present. During this period of time two on-site investigations were conducted in order to provide information for the Hazard Ranking System. During May of 1980, sampling was conducted at the ACS site by the U.S. EPA Environmental Emergency and Investigation Branch. Sampling was again conducted at the ACS site during November, 1982 when a U.S. EPA FIT

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contractor (Ecology and Environment) installed four monitoring wells and collected water samples. A detailed chronology of U.S. EPA site activities is presented below.

February 22, 1980	Mr. Shandross of U.S. EPA Region V makes an Identification and Preliminary Assessment of ACS as potential hazardous site.
March 4, 1980	Mr. Shandross of U.S. EPA Region V makes a Site Inspection Report of ACS as a possible hazardous waste site.
March 7, 1980	Mr. Shandross of U.S. EPA Region V prepares a tentative disposition of ACS as a potential hazardous waste site and recommends investigative action by EPA and State because there is no information on types of wastes, volume and how wastes are buried.
May 8, 9, 1980	A Field Sampling Report was prepared by Surveillance and Analysis Division of Environmental Emergency & Investigations Branch of U.S. EPA. The report includes a discussion of four water and soil samples taken at ACS site and contains photographs taken at the site. The samples were analyzed for organic pollutants, metals and cyanide.
May 18, 1980	Mr. Shandross of U.S. EPA Region V prepares a trip report and submits it to Mr. Goldstein, Chief, Hazardous Waste Management Section, U.S. EPA. The report included discussions of the ACS waste disposal area, wastes disposed at site, problems with neighbors, local wells, geology and past incineration practices.
July 3, 1980	Central Regional Laboratory prepares a laboratory report based on sampling conducted at ACS site on May 8 and 9, 1980. Water and sediment samples collected at ACS indicated the presence of following priority pollutants: phenol, isophorone, naphthalene, fluorene, phenathrene, anthracene, bis(2-chloroethyl) ether, and phthalates.
August 19, 1980	On-scene Coordinator for U.S. EPA Region V informs ACS to provide containment measures to prevent oily discharge from the ACS Off-site Containment Area entering the surface water. The containment measures to be completed by November 1, 1980.

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December 12, 1980 U.S. EPA prepares a report based on an RCRA inspection of ACS facility on December 4, 1980. The inspection indicated the following violations: Lack of controlled entry, lack of evacuation plan, lack of maintenance of a complete operating record and failure to perform complete analysis of wastes to be incinerated.

April 7, 1981 Memorandum to file by EPA Region V based on a site visit to ACS by Mr. A.K. Baumann on March 13, 1981. Site inspection indicated that the landfill area has been covered with 12 inches of clay and seeded. An evacuation plan has been made as part of the contingency plan. ACS has implemented a new method for cross-referencing manifest document numbers. Fence has been installed and ACS would also fence the area to be purchased from the railroad. Regarding compliance order, only site security remains unresolved.

June 8, 1981 U.S. EPA Region V receives Notification of Hazardous Waste Site from Estech Specialty Chemicals Corp. regarding the epoxidized cotton seed and linseed oils process at ACS.

June 8, 1981 U.S. EPA Region V receives Notification of Hazardous Waste site from Mobil Chemical Co., regarding wastes handled by ACS.

June 8, 1981 U.S. EPA Region V receives Notification of Hazardous Waste Site from Ashland Chemical Co. regarding wastes handled by ACS.

August 12, 1981 U.S. EPA Region V sends Mr. Reyome, Dept. of Public Works, Griffith, Indiana, the following reports:

1. Findings of violation and compliance order.
2. Field sampling report, May 8, 9, 1980
3. Proposed closure plan for ACS prepared by Ecology and Environment, Inc. on September 16, 1980.

October 21, 1981 Mr. Shandross, State Implementation Officer, U.S. EPA Region V writes Mr. Reyonne, Director of Public Works, Griffith, Indiana providing clarification on items published by Hammond Times and Gary Post Tribune.

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2.2.3.4 American Chemical Service, Inc. Correspondence Chronology

The following chronology covers the period from June, 1972 to present.

June 29, 1972	Mr. George Murphy of ACS sent a letter to Mr. Miller, Technical Secretary of State of Indiana Stream Pollution Control Board regarding reactivation of oil skimmer on plant effluent to the treatment ponds, plans for providing dike for storage tanks and plans for covering drains to eliminate stormwater discharges to the lagoon.
October 24, 1972	Mr. Sam Moore, Chief Industrial Waste Disposal Section of ISBH wrote a letter to Mr. George Murphy of ACS regarding satisfactory progress being made by ACS and informed that ACS should contact the Town of Griffith regarding extending sewer to ACS.
April 26, 1973	Letter to ISBH by Mr. George Murphy of ACS proposing installation of process to manufacture epoxidized linseed oil and soybean oil and estimates of volume of wastewater discharges from these processes. Requested permission from ISBH for installation of these processes.
May 10, 1973	ACS provides additional information on volume and characteristics of wastewater discharges and proposed treatment from new processes identified in their letter of 4/26/73.
June 19, 1973	ISBH approves plans for controlling wastes from the manufacture of epoxidized linseed and soybean oils.
September 26, 1980	ACS informs the on-scene coordinator that containment measures suggested in his letter to ACS on August 19, 1980 will be implemented as requested.
April 29, 1981	Director of Enforcement Division of U.S. EPA Region V sends a consent agreement and final order for ACS.
June 18, 1981	Chief of Litigation Unit V receives the signed consent agreement from ACS.



TABLE 1 (continued)

SUMMARY OF ON-SITE EVENTS AT AMERICAN CHEMICAL SERVICE, INC. SITE FROM 1971 TO PRESENT

DATE	EVENT	SOURCE	COMMENTS
8/2/72	ISBH inspection	Industrial Waste Disposal Section Report	Changes in lard oil process dried up one ditch, water in culvert on south side of railroad track was sampled, old lagoon was now filled with mostly unlabeled, full, partially full, or empty drums (owner said had been that way for a year, ISBH official said wasn't there 3 months before).
3/13/73	ISBH inspection	Industrial Waste Disposal Section Report	ACS had substantially cleaned up drum storage area, incinerator and gasoline additive area.  Lard oil effluent to lagoons still "a mess".
4/4/73	ISBH inspection	Industrial Waste Disposal Section Report	Lard oil operation shut down
8/15/78	Discussion of inspection of Griffith Landfill on 6/15/78	Memo to Lake Co. from Jim King	Conclusions: Landfill rated as marginal for hazardous waste disposal if sandy upper layer is removed and operations confined to clay layer, extensive volumes of water are migrating along sand/clay interface with discharge into pit in west-central part of property and leachate (black) was observed being pumped into a ditch leading off the Griffith Landfill property. Leachate flows NW.

TABLE 1 (continued)

SUMMARY OF ON-SITE EVENTS AT AMERICAN CHEMICAL SERVICE, INC. SITE FROM 1971 TO PRESENT

DATE	EVENT	SOURCE	COMMENTS
5/8-9/80	Field sampling of ACS and Griffith Landfill by U.S. EPA	Field Sampling Report	Leachate (black) was observed being pumped into a ditch leading off the Griffith Landfill property.
5/18/80	Report of trip to ACS	Letter from Richard Shandross to Jay Goldstein	<p>Off-site Containment Area (Map 1/location C) 120'x250'x9' (10,000 yds<sup>3</sup>) contains 25,000-30,000 1/3-full drums, sludge, buried tank truck (1/3-full). Leaching to east and north forming a black puddle 10'x20' which soaks in every year.</p> <p>Griffith Landfill has black (but different) leachate along N&amp;E borders that flows to Turkey Creek.</p> <p>Waste in the Off-site Containment Area is characterized as 80% solvent distillation bottoms, 20% other (80% = 1/4 solvents, 1/4 pigments, 1/2 resins incl. PCBs)</p> <p>Discharges to ditch killed vegetation</p> <p>2 barrel fires have occurred</p> <p>There are four on-site wells at ACS, Inc.; three at Griffith Landfill (1 in use); and 1 at Kapica Drum, Inc. drum (now Pazmey Corp.) Total of 8 wells.</p>

TABLE 1 (continued)

SUMMARY OF ON-SITE EVENTS AT AMERICAN CHEMICAL SERVICE, INC. SITE FROM 1971 TO PRESENT

DATE	EVENT	SOURCE	COMMENTS
5/18/80	(continued)		Salisbury Engineering made 4 test borings at the Griffith Landfill and encountered (1hr after drilling) water levels at 4' in 3 borings and 16' in the fourth.  Incinerator operated 1968-1978. Bottom ash (most went up stack) disposed of on-site for 2 yrs.  7-8 barrels of PCB burned during the period of incinerator operation.
7/3/80	Results of field sampling by U.S. EPA	Lab report from Curtis Ross, Central Regional Lab, to Richard Bartelt Environmental Emergency Investigation Branch	2 soil samples: 15' north of ACS Off-site Containment Area and 36' east of ACS Off-site Containment Area 2 water samples: Leachate pool 10' north of ACS Off-site Containment Area and runoff from Griffith Landfill.  Conclusions: Significant contamination by priority pollutants in soils and leachate (phenol, isophoron, naphthalene, fluorene, phthalates)  Griffith Landfill runoff contains phenols, ketones, and alcohols.

TABLE 1 (continued)

SUMMARY OF ON-SITE EVENTS AT AMERICAN CHEMICAL SERVICE, INC. SITE FROM 1971 TO PRESENT

DATE	EVENT	SOURCE	COMMENTS
9/9/80	(Ecology & Environment) FIT inspection of ACS site.		
9/11/80	Discussion of FIT Investigation	Letter to Rene Van Someren from Rod Bloese	Mr. Tarpo (President of ACS, Inc.) estimated 20,000 drums were disposed of in the ACS Off-site Containment Area and were punctured to prevent floating.  Leachate spring observed (with stains of past leaching) along northeast face of Off-site Containment Area.  Leachate ponded in low area adjacent to Off-site Containment Area, flora damaged to 1' from ponded area.  Drums exposed along face of Off-site Containment Area.  General refuse dump area envelopes the southern part of the Off-site Contain- ment Area.  Trench dug SW of ACS Off-site Contain- ment Area on the Griffith Landfill is 25' below grade, liquid is pumped into Griffith sewers.

TABLE 1 (continued)

SUMMARY OF ON-SITE EVENTS AT AMERICAN CHEMICAL SERVICE, INC. SITE FROM 1971 TO PRESENT

DATE	EVENT	SOURCE	COMMENTS
7/12-14/82	Four monitoring wells	Boring logs	Drilled to depths of 15-25', encountered water, sand and gravel to 15-20', then silty clay. Water 4-10' below surface.
8/18/82	Water sampling by FIT team	E&E report to Tim O'Mara from Ellen J. Jurezak	
11/3/82	Results of water sampling by FIT team	E&E report to Tim O'Mara from Ellen Jurezak	Upgradient monitoring well most contaminated (M.W. 2 near Off-site Containment Area). Other monitoring wells have lower levels of contamination.
9/83	Summary of complaints against ACS since 1972	Sheet headed "Conditions at Listing"	Shallow water aquifer contaminated by pentachlorophenol, benzene, toluene, vinyl chloride, 1,1,1-trichloroethylene No contamination of drinking water wells as yet.

## 2.3 CONTAMINATION PROBLEM DEFINITION

### 2.3.1 WASTE DISPOSAL AT SITE

The two primary activities of American Chemical Service, Inc. are chemical manufacturing and solvent reclamation. Table 2 summarizes the American Chemical Service, Inc. manufacturing processes with regard to hazardous wastes generated, quantity, storage, treatment and disposal practice. Based on a review of this data, the following conclusion can be drawn concerning site contamination with hazardous materials from manufacturing processes.

1. Hazardous wastes were generated. Examples are Benzene (P028), Toluene (U220), Maleic anhydride (U147), Methanol (U154), Formaldehyde (U122).
2. Some hazardous wastes were stored in drums or large tanks on ACS property prior to disposal by incineration or recovery by distillation (Benzene, Toluene, Maleic Anhydride).
3. The following six manufacturing processes resulted in wastes being disposed of in the Off-site Containment Area (see Map 1 - Map Location C).
  - o Imidization of 6D with Amine - 1200 gal/yr (1971-1975) of filter cake. Hazard unknown.
  - o Mannich condensation calcium neutralized - 600 gal/yr of filter cake (1973-1975). Hazard unknown.
  - o Copper-8-quino linate production - unknown number of empty fiber drums and bags (1973-1975). Hazard unknown.
  - o Manufactured paints or laquers - unknown number of empty tins and bags. Hazard unknown.
  - o Manufactured soldering flux - unknown number of empty tins and boxes (1967-1975). Hazard unknown.
  - o Manufactured mold release agents - unknown number of empty tins and boxes (1967-1975). Hazard unknown.
4. The following four manufacturing processes resulted in wastes passing through Treatment Pond #2 (see Map 2 - Map Location B).

TABLE 2  
STORAGE, TREATMENT AND DISPOSAL OF SELF GENERATED WASTE AT AMERICAN CHEMICAL SERVICE, INC.

Period of Operation	Manufacturing Process	Hazardous Wastes, By-Products and/or Hazardous Substances Generated	Quantity Generated	Storage Practice	Treatment Practice	Disposal Practice
1955-Present	Barium Naphthalate Production	None				
		Liquid waste: 50% benzene (1974-1976) or 50% toluene and 50% epoxidized linseed oil	12,000 gal/yr.	Benzene/Toluene: transported in drums to incinerator storage tanks		1974-1977: incinerated 1977-present: blended as fuel source
				Aqueous waste + H <sub>2</sub> O <sub>2</sub>	1974-1981: passed through 2 settling tanks	Discharged to POTW
1958-Present	Bromination of vegetable oil	Aqueous waste: 50% methanol	30,000 gal/yr	Aqueous waste plus methanol (1958-1967): collected in tanks	Separated by distillation	Methanol resold, water discharged to marsh. (Map 1/Location A)
		Aqueous waste: mostly water	37,000 gal/yr	Aqueous waste (1967-1974): collected in tank and pumped to incinerator storage tanks.		Incinerated
1958-Present	Bromination of Vegetable Oil (continued)	Aqueous waste, mostly water		Aqueous waste (1974-1982): collected in drums and pumped to incinerator storage tanks		(1974-1977): Incinerated (1977-1982): Blended as fuel

Information contained in Table 2 is from the ACS response to U.S. EPA Request for Information (October 18, 1984).

TABLE 2 (continued)

STORAGE, TREATMENT AND DISPOSAL OF SELF GENERATED WASTE AT AMERICAN CHEMICAL SERVICE, INC.

Period of Operation	Manufacturing Process	Hazardous Wastes, By-Products and/or Hazardous Substances Generated	Quantity Generated	Storage Practice	Treatment Practice	Disposal Practice
		Hexane	2,000 gal/yr	Hexane (1976-present): collected in a tank		Transported in drums, pumped to incinerator storage tanks. (1976-1977): incinerated (1977-present): blended as fuel source
1969-present	Manufactured paints or laquers	Paint or laquer	500 gal/yr.	Liquid consisting of 95% thinner and 5% paint or laquer collected in drums	Distilled and thinner recovered.	Residue pumped to incinerator storage tanks and incinerated
		Empty tins and bags	Unknown			Off-site Containment Area (Map 1/Location C)
1971-Present	Condensation of Maleic Anhydride and Polybutene	Liquid waste of 50% maleic anhydride and 50% polybutene	6,000 gal/yr.	Maleic anhydride and polybutene (1971-present): collected in 1,500 gal. tank and pumped to incinerator storage tanks		(1971-1977): incinerated (1971-present): blended as fuel source
1971-Present	Imidization of (6D) with amine	Water reaction waste	10,000 gal/yr		Passed through Treatment Pond #2 (1971-1974) Passed through Treatment Pond #2 (1974-1978) (Map 2/Location B)	Discharge to marsh (Map 1/Location A) Discharged to the POTW
				(1978-present): collected in a 4,000 gal. tank		Hauled by tank truck to commercial landfills



TABLE 2 (continued)

STORAGE, TREATMENT AND DISPOSAL OF SELF GENERATED WASTE AT AMERICAN CHEMICAL SERVICE, INC.

Period of Operation	Manufacturing Process	Hazardous Wastes, By-Products and/or Hazardous Substances Generated	Quantity Generated	Storage Practice	Treatment Practice	Disposal Practice
		Filter cake: 50% diatomaceous filter aid, 50% product	1,200 gal/yr.	Filter cake solid (1971-present): collected in drums		Disposed of at the Off-site Containment Area (1971-1975) (Map 1/Location C)  Disposed of at commercial landfills (1975-Present)
1973-Present	Mannich Condensation Calcium Neutralized	Aqueous waste: 10% methanol	40,000 gal/yr		Treatment Pond #2 (1973-1974)  Treatment Pond #2 (1974-1978) (Map 2/Location B)  1978-1984: collected in 4,000 gal. tank  1984-present:	Discharge to marsh (Map 1/Location A)  Discharge to POTW  Hauled by tank truck to commercial landfills  Methanol reused as fuel water discharged to POTW
		Filter cake: diatomaceous filter (50%) and 50% product	600 gal/yr	Filter cake solid: (1973-present) collected in drums		Disposed of at Off-site Containment Area (1973-1975) (Map 1/Location C) Commercial landfills (1975-present)
		Ca(OH) <sub>2</sub> (solid)	2,000 empty bags/yr			
1972-1974	Copolymerization of Furfuryl Alcohol and Formaldehyde	Aqueous waste (mostly water)	5,000 gal/yr.	Aqueous waste (1972-1974): collected in 2,000 gal. tank	Treatment Pond #2 (Map 2/Location B)	Discharge to marsh (Map 1/Location A)
		Waste (mostly furfuryl alcohol)	10,000 gal/yr	Organic waste: collected in 2,000 gal. tank and pumped to incinerator storage		1974-1977: incinerated 1977-present: used as fuel source

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TABLE 2 (continued)

STORAGE, TREATMENT AND DISPOSAL OF SELF GENERATED WASTE AT AMERICAN CHEMICAL SERVICE, INC.

Period of Operation	Manufacturing Process	Hazardous Wastes, By-Products and/or Hazardous Substances Generated	Quantity Generated	Storage Practice	Treatment Practice	Disposal Practice
1973-1979	Furan Resin Catalyst Blend	None		tanks		
1973-Present	Copper-8-Quinolinate production	Dilute acetic acid	400 gal/yr	Dilute acetic acid collected in drums		1973-1977: incinerated 1977-present: fuel source
		Fiber drums and bags (empty)	Unknown			Off-site Containment Area (1973-1975) (Map 1/Location C) Commercial landfill (1975-Present)
1974-Present	Homopolymerization of furfuryl alcohol	Aqueous waste (mostly water)	12,000 gal/yr.	Aqueous waste (1974- to 1978): collected in 2,000 gal. tank (1978-present): collected in 8,000 gal. tank	Treatment Pond #2 (Map 2/Location B)	POTW  Hauled to commercial disposal locations
1965-1975	Manufactured soldering flux	No wastes Empty tins & Boxes	Unknown			Griffith Sanitary Landfill (1965-1967) Map 1/Location D. Off-site Containment Area (1967-1975) (Map 1/Location C.
1974-Present	Epoxidation of Linseed Oil	Aqueous waste: 1.5% H <sub>2</sub> O, 1.2% formic acid, .3% NaOH	40,000 gal/yr.	Aqueous waste + NaOH and soap of lineolic acid: collected in 4,000 gal tank (1979-1981)		Hauled to Land and Lakes III, Chicago
		Aqueous waste: 2.3% NaOH and 15% soap of lineolic acid	1,000,000 gal/yr	1981-present: both aqueous wastes	Neutralization tank and 2 settling tanks	Discharged to POTW

TABLE 2 (continued)

STORAGE, TREATMENT AND DISPOSAL OF SELF GENERATED WASTE AT AMERICAN CHEMICAL SERVICE, INC.

Period of Operation	Manufacturing Process	Hazardous Wastes, By-Products and/or Hazardous Substances Generated	Quantity Generated	Storage Practice	Treatment Practice	Disposal Practice
1967-Present	Manufactured mold release agents	No wastes Empty tins & boxes	Unknown			Off-site Containment Area (1967-1975) Map 1/ Location C Commercial Landfill (1975-present)
10/71-3/73	Processed animal oils	Water & small amounts of animal oils	1,000,000 gal/yr		Treatment Pond #2 (Map 2/Location B)	Skipped, removed and resold
1962-1965	Manufactured Ski Belts	None				
1955-1963	Rope treatment	None				
1963-1975	Manufactured cable flooding compound	None				

- o Indization of 6D with Amine - 10,000 gal/yr of water reaction/waste (1971-1978).
- o Mannich condensation calcium neutralized - 40,000 gal/yr (10% methanol) (1973-1978).
- o Copolymerization of Furfuryl, Alcohol and Formaldehyde - 5000 gal/yr (1972-1974). Mostly water.
- o Homopolymerization of Furfuryl Alcohol - 12,000 gal/yr (1974-1978). Mostly water.

The manufacturing process wastes deposited in the Off-site Containment Area were primarily empty containers. The contents of the containers were probably raw materials used for the particular manufacturing process. The hazard potential of the manufacturing process wastes disposed of in the Off-site Containment Area is unknown based on the available information. Waste from manufacturing processes that passed through Treatment Pond Number 2 contained two listed hazardous wastes. These listed hazardous wastes are methanol and formaldehyde. Based on the available data, approximately 24,000 gallons of methanol and a small volume of formaldehyde were treated in Treatment Pond Number 2. It is unlikely that remnants of either of these wastes still remain in the treatment pond.

Table 3 summarizes the disposal practices of American Chemical Service, Inc., and Kapica Drum, Inc. from 1955 to the present. This table includes disposal practices for both the ACS manufacturing process wastes and solvent reclamation wastes; and Kapica Drum, Inc. drum reclamation wastes. Basically there are four locations on ACS property that contain buried hazardous wastes. These locations are:

- o Off-site Containment Area (Map 1 - Location C)
- o On-site Containment Area (Map 2 - Location E)
- o Old Still Bottom Pond (Map 2 - Location F)
- o Old Treatment Pond Number 1 (Map 2 - Location G)

In addition, it is suspected that wastes are located in the Griffith Landfill (Map 1/Location D). These wastes were contributed by ACS and Kapica Drum, Inc. (now owned by Pazmey Corporation) This is based on information supplied by the reply to the U.S. EPA Request For Information sent to ACS (10/18/84)

The table is self-explanatory; however, in summary, the largest disposal area is the Off-site Containment Area. The Old Still Bottoms Pond and Old Treatment Pond Number 1 also contain significant amounts

TABLE 3  
DISPOSAL PRACTICES BY AMERICAN CHEMICAL SERVICE, INC. AND KAPICA DRUM, INC.

Disposal Practice	Period	Type	Quantity	Location	Comments
<u>AMERICAN CHEMICAL SERVICE, INC.</u>					
Landfilling	1955-1977	55 gal. drums of PCB contaminated waste	6 Drums	Off-site Containment Area (Map 1/Location C)	Containers punctured as they were landfilled
		Non-reclaimable still bottoms			
		Drums containing solidified materials Ex: Latex paint, solid resin			
	1956-1975	Distillation bottoms	10,000 cy		
		Solid material rec'd for reclamation			
		Solid material rec'd for incineration			
		Paper			
		Incinerator ashes	68 cy		
		Ignitable and corrosive hazardous wastes			
		Chlorinated solvent, acetone and MEK bottoms			

Information contained in Table 3 is from the ACS response to U.S. EPA Request For Information (October 18, 1984).

TABLE 3 (continued)

DISPOSAL PRACTICES BY AMERICAN CHEMICAL SERVICE, INC. AND KAPICA DRUM, INC.

Disposal Practice	Period	Type	Quantity	Location	Comments
		Spent cresylic acid, cyanide and chromium from plating			
		Lead Pigments			
		Empty bottles that had contained 2,4,D and 2,4,5-TP	Several 100 cases		
		1 tank truck containing 500 gallons solidified paint			
Landfilling	Mid 60's	Sludge and semi-solids of unknown type.	400 drums	On-site Containment area (Map 2/Location E)	
Landfilling	1969-1975	Solids in drums-questionable as to content, but probably solvent solids of benzene, amylacetate, dimethyl aniline, diethylether	200 drums	Treatment Pond #1 or Off-site Containment Area	During this time the 2,4-D and 2,4,5-TP plus an unknown amount of DDT was incinerated
Landfilling	1955-1967	Trash		City of Griffith Indiana Landfill (Map 1/Location D)	
		Retained samples (contained hazardous substances)	10 gal/wk		
Pond disposal	1955-1972	Still bottoms sludges from reclamation processes sludges containing 1,1,1-trichloroethane, trichloroethylene, methylene chloride, toluene, benzene and other low boiling solvents.	253,510 gal. still bottoms sludge and 2,000 partially filled drums	Old Still Bottoms Pond (Map 2/Location F) (125' dia.x 4.5' deep)	

TABLE 3 (continued)

DISPOSAL PRACTICES BY AMERICAN CHEMICAL SERVICE, INC. AND KAPICA DRUM, INC.

Disposal Practice	Period	Type	Quantity	Location	Comments
		Partially filled drums of semi-solid paint, lacquer and ink waste	41,612 gal. sludge 1,000 partially filled drums	Old Treatment Pond #1 (Map 2/Location G) (180'x70'x3' Deep)	Treatment Pond #1 and the still bottoms pond were filled and sealed in 1972. During closing the liquid portion of Treatment Pond #1 and the Still Bottom Pond were drained leaving the heavy sludges. Drums were placed on top of the pond, punctured and crushed. Ponds were "closed off" by sand fill and compacting
	1968-1976	Aqueous phase containing small quantities of organic (some hazardous) solvents		Treatment Pond #2 (Map 2/Location B) (180'x70'x10' Deep)	Supposedly biodegradable wastewater overflow from Treatment Pond #1 and API oil decanter was discharged here. Overflow from Treatment Pond #2 went to the marsh from 1968-1974 and to the POTW from 1974 to Present.
Treatment Pond Inter-connections					
API Oil Decanter	1963-1967	1,1,1-trichloroethane, trichloroethylene, methylene chloride, toluene, benzene and other low boiling solvents		API oil decanter (Map 2/Location H)	Dimensions are 15'x15'x5' 1963-1967- wastewater flowed directly to marsh 1967-1972-wastewater flowed to T.P. #1 then to marsh 1972-1974 wastewater flowed to T.P. #2 then to marsh
Trenches	1955-1976	Reclamation residues containing above-mentioned compounds		Trench #1 (1'x2'x125') (Map 2/Location I)	Conducted wastewater to Trench #2
	1955-1976	Reclamation residues containing above-mentioned compounds		Trench #2 (1'x2'x110') (Map 2/Location J)	1955-1963: Conducted wastewater from reclamation facility to marsh 1963-1976-to API oil decanter Replaced in 1976 by a close-pipe system
	1963-1976	Aqueous phase w/small quantities of organic (some hazardous) solvents		Trench #3 1'x2'x70' (Map 2/Location K)	(1963-1967): Conducted wastewater from API oil decanter to marsh All trenches are presently filled, and the area is used as a roadway

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TABLE 3 (continued)  
 DISPOSAL PRACTICES BY AMERICAN CHEMICAL SERVICES

Disposal Practice	Period	Type	Quantity	Location	Comments
<u>KAPICA DRUM, INC.</u> (now Pazmey Corp.)					
DISPOSAL OF CONTENTS					
	1961-1971	If drums sent to Kapica contained liquid, the contents were dumped on the ground OR	330 yd <sup>3</sup>	Kapica Dump site (Map 1/Location L)	
		Combined to generate full drums	2,500 drums	Griffith Sanitary Landfill (Map 1/Location D)	
	1978-1980	Paint residue sludge from Kapica Drums, Inc.	250 gal/wk	ACS sludge box	For disposal at Gary Development Landfill
DISPOSAL OF RINSE WATER					
	1961-1971	Unknown	Unknown	West end of Kapica property	
Drum Washing	1962-1983	Liquid waste		Flowed intermittently onto ACS property from Kapica Drums, Inc. and Pazmey Corp.	
Drum Reconditioning	1962-July 1980	Empty drums from ACS were picked up and reconditioned by Kapica		Kapica Drums	After August, 1980, ACS bought new drums from Kapica (who sold out to Pazmey in 2/80)
	1962-1980	1,000 gal. H <sub>2</sub> O containing 600 lbs. NaO14(s) + 400 lbs Na <sub>3</sub> PO <sub>4</sub> (s)	3 times/year	Unknown	Used for washing drums at Kapica



of waste; however, the volume is less than the Off-site Containment Area. The smallest of the waste disposal sites is the On-site Containment Area. The small piece of property owned by ACS and reported to be used by Kapica Drum, Inc. to dispose of drum residue may have contaminated soil, however, there is no documentation of buried waste. In addition there were three trenches on ACS property that carried waste from the solvent reclamation facility to the storage and treatment ponds. These may be sites of contaminated soil.

Table 4 summarizes the locations of waste storage sites prior to reclamation. This data has been included to indicate areas in which the potential for spills and/or leaks during storage may have occurred. However, the only documented spills were dry solvent that was cleaned up, and a spill and subsequent fire.

In summary, the specific areas recommended for remedial investigation based on available data are as follows:

<u>Property</u>	<u>Location</u>	<u>Justification</u>
American Chemical Service, Inc.	Off-site Containment Area (Map 1/ Location C)	Documented Hazardous Waste Disposal Site
	On-site Containment Area (Map 2/ Location E)	Documented Hazardous Waste Disposal Site
	Old Still Bottoms Pond (Map 2/ Location F)	Documented Hazardous Waste Disposal Site
	Old Treatment Pond #1 (Map 2/ Location G)	Documented Hazardous Waste Disposal Site
	Kapical Drum, Inc. Draining Area (Map 1/ Location L)	Suspected Soil Contamination
	Old Drum Storage Area (Map 2/ Location M)	Suspected Soil Contamination

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TABLE 4

AMERICAN CHEMICAL SERVICE, INC. HAZARDOUS WASTE STORAGE PRACTICE  
PRIOR TO RECLAMATION

PERIOD	WASTE	STORAGE PRACTICE	LOCATION
1955-1968	Incoming materials prior to reclamation	Drum storage direction ground. Occasional spillage. Dry solvent mass easily picked up Area was undiked.	Drum storage area (Map 2/Location M)
1966	Reclamation bottoms to be fed to the incineration	Bulk storage at tank farm. Finally diked in 1973.	Location of present waste fuel tank farm. (Map 2/Location N)
1970-1975	Reclamation Crude	Converted 75% from drum storage to bulk storage. Began picking up in bulk from customers in 1970.	Reclaim crude tank farm (Map 2/Location P)
Unknown	Chlorinated solvents	Drum storage	Unknown
Unknown	Unknown	Small fire in drum storage area several hundred gallons of material spilled.	Drum Storage Area (Map 2/Location M)

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	Old Wastewater Trenches (Map 2/ Location I,J, K)	Suspected Soil Contamination
Kapica Drum, Inc. (now Pazmey, Corp.)	West end of Kapica Drum property (Map 2/ Location O)	Suspected Soil Contamination
City of Griffith	Griffith Landfill (Map 1/ Location D)	Suspected Hazardous Waste Disposal Site

Figure 3 shows the relationship between the hazardous waste generated and processed by American Chemical Service, Inc. and their ultimate disposal.

#### 2.3.2 DEGREE OF SITE CONTAMINATION

There are four locations on the American Chemical Service, Inc. property that are documented hazardous waste disposal sites. The most heavily contaminated areas are the Off-site Containment Area, Old Treatment Pond Number 1, Old Still Bottoms Pond and On-site Containment Area. This classification is due to the large quantity and wide variety of waste buried at these locations. One other area of the property that can be classified as possibly contaminated is the old drum storage area (Map 1 - Location M). This statement is based on the fact that drums were stored in other areas prior to being reclaimed. These drums contained a wide variety of material and it is likely that spills occurred in the area.

In addition, there are two other areas on ACS property that are suspected of having contaminated soil of unknown degree. These are the Kapica Drum, Inc. drum draining area and, old wastewater trenches. The Kapica Drum, Inc. drum draining area is reported to have been used to dispose of drum residue prior to reclamation. The old wastewater trenches are suspected of soil contamination because they were used to transport wastewater from the solvent reclamation facility to the storage and treatment ponds.

Finally, there have been references to waste from ACS and Kapica being disposed of in the Griffith Landfill. The general location where these wastes, if they actually exist, were probably disposed of is shown on Map 1 - Location D. This location was provided by City of

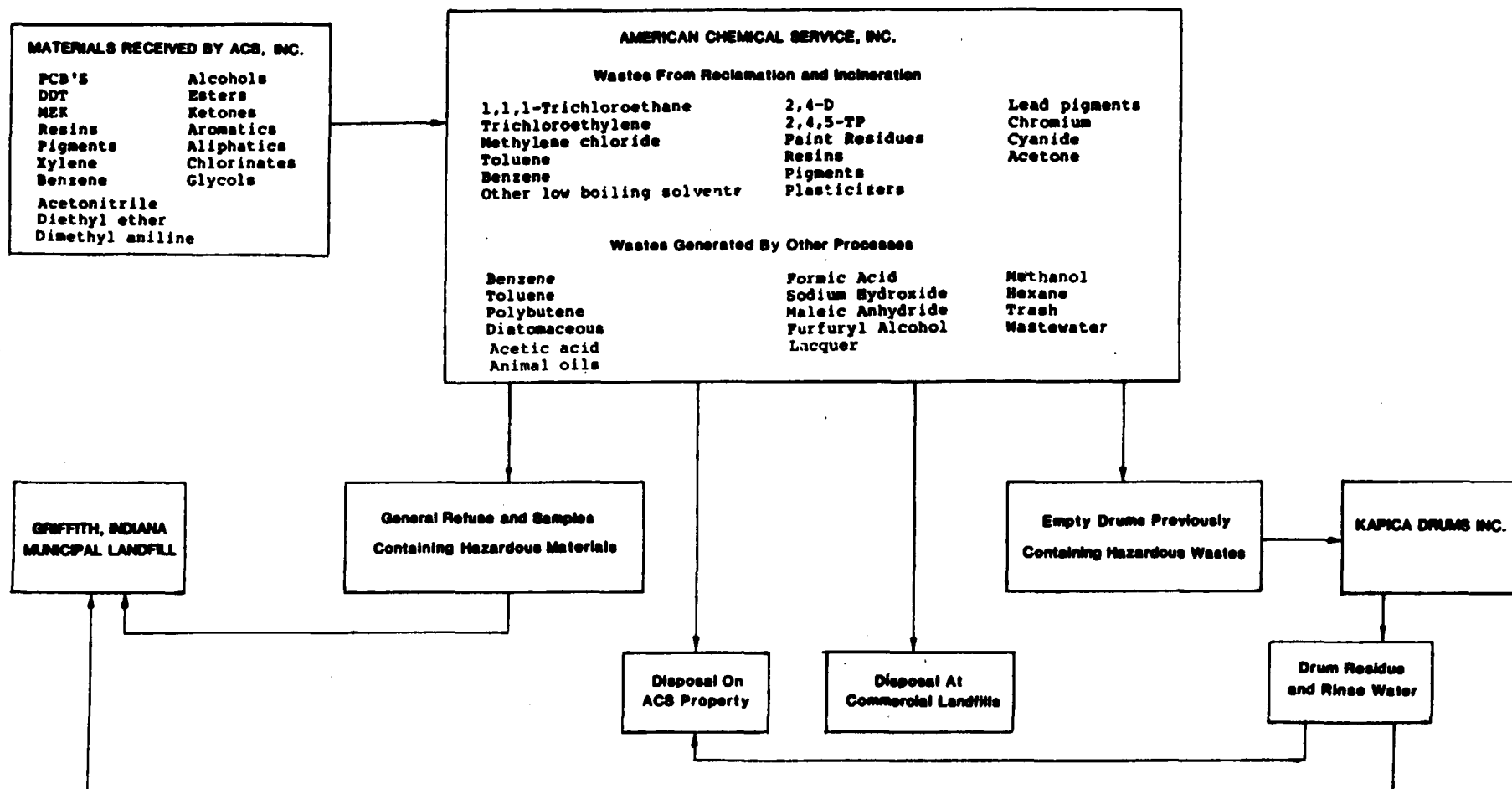


FIGURE 3 WASTE DISPOSAL FLOWCHART

Griffith Department of Public Works personnel as the most likely location for wastes if they were disposed of in the landfill. The degree of contamination, if any, is unknown.

On-site soil and water sampling has been conducted twice at the ACS site. Tables 5 & 6 summarize the May, 1980 sampling results. Thirty-nine organic compounds were identified during the May, 1980 sampling along with a number of metals. Table 7 summarizes the November, 1982 sampling results. Ten organic compounds were identified in monitoring well water samples. The location of these wells in relation to the Off-site Containment Area is shown on Map 1. Monitoring Wells 1 & 2 are relatively close to the On-site Containment Area and the results indicate that waste constituents have migrated at least to these monitoring wells.

## 2.4 CONTAMINANT MIGRATION AND ENVIRONMENTAL/HEALTH EFFECTS

### 2.4.1 MIGRATION PATHWAYS

Contaminant migration from the ACS site can be in surface water or groundwater. Airborne contaminant migration is not likely at the ACS site. As noted in Section 2.3.2, documentation of contaminants in On-site surface and groundwater (upper aquifer) was obtained during the 1980 and 1982 sampling. Off-site surface water sampling has not been conducted.

Off-site groundwater sampling has been conducted on two occasions. The first is a Lake County Groundwater Survey conducted by the Indiana State Board of Health. This survey involved the sampling of 32 wells. Some of the well locations are shown on Figure 4. The results of the survey are shown on Table 8. The analysis was primarily to measure metals content. The data did not reveal any parameter beyond the levels set for the Safe Drinking Water Act (SDWA) for maximum contaminant levels. No organic compound data was collected.

Table 9 shows the results of water sampling at seven homes near ACS. Six of the wells did not show any contaminants. One of the wells (O'Neil) showed a Benzene concentration of 6.2 ppb and an acetone concentration of .9 ppm. Due to the lack of confirming data from the other six nearby wells the validity of the Benzene contamination is questionable. However, if the O'Neil well uses water from a different aquifer (perhaps the upper aquifer) than the other six wells, this could explain the difference in the findings. The available data is not sufficient to definitely state that contamination has moved outside ACS property.

### 2.4.2 POTENTIAL RECEPTORS

Groundwater is the primary receptor of concern. Surface water is a secondary receptor. Existing information indicates that there are two

TABLE 5

U.S. EPA SAMPLING RESULTS  
 SURVEILLANCE AND ANALYSIS DIVISION  
 ENVIRONMENTAL EMERGENCY AND INVESTIGATIONS BRANCH  
 AT AMERICAN CHEMICAL SERVICE AND GRIFFITH CITY LANDFILL  
 MAY 8-9, 1980  
 (CONCENTRATION UNIT IN PPB)

	Subsurface Soil Sample #1 15' N of ACS Off-Site Containment Area	Subsurface Soil Sample #2 36' E of ACS Off-Site Containment Area	Water Sample #1 from Leachate Pool 10' N of ACS Off-Site Containment Area	Water Sample #2 from Run Off From Griffith Landfill
Phenol	K1,400	26	K13	350
Isophorone	K700	6.2	K240	K0.7
Naphthalene	12,000	21	29	K0.5
Fluorene	1,000	6.1	K23	K0.8
Diethylphthalate	K7,400	2,500	K240	10
Phenanthrene and anthracene	1,400	26	K42	K1.0
Di-n-butylphthalate	1,100	11	K240	21
Bis(2-ethylhexyl)phthalate	110,000	71	510	63
Butylbenzylphthalate	8,300	117	K240	K0.7
Bis(2-chloroethyle)ether	K400	K5.5	300	28
Dimethylphthalate	K510	K5.5	2,300	K0.7
Methylnaphthalenes(2)	32,000	-	-	-
Dimethylnaphthalenes(5)	22,000	-	-	-
Dephenylether	3,800	-	-	-
Polychlorinated Unknown	12,000	-	-	-
Hydrocarbons(2)	5,100	-	-	-
(2-Ethoxy)Ethyl Acetate	-	17,000	-	-
2-(Hydroxymethyl)-1-pentanol	-	40,000	-	-
Trimethyl-2-cyclohexen-1-one	-	36,000	-	-
N-methyl-2-pyrrolidone	-	11,000	-	-

TABLE 5 (continued)

	Subsurface Soil Sample #1 15' N of ACS Off-Site Containment Area	Subsurface Soil Sample #2 36' E of ACS Off-Site Containment Area	Water Sample #1 from Leachate Pool 10' N of ACS Off-Site Containment Area	Water Sample #2 from Run Off From Griffith Landfill
1-(2-butoxyethoxy)ethanol	-	6,800	-	-
2-ethylhexanoic acid	-	4,100	-	-
methylphenols (2)	-	57,000	-	-
Ethylphenols (3)	-	58,000	-	-
Dimethylphenols (2)	-	15,000	-	-
Pentylphenol	-	4,100	-	-
Methoxytrimethylphenol	-	11,000	-	-
Dimethyl Benzenedicarboxylate	-	5,300	-	-
2,2,4-Trimethyl-3-cyclohexen- 1-methanol	-	1,700	-	-
N-methyl-2-pyrrolidone	-	-	-	180
Methylphenol	-	-	-	120
Dimethylphenol	-	-	-	52
Pentylphenol	-	-	-	81
Trimethyl-cyclohexanone	-	-	-	160
2-(2-Methoxy-1-methylethoxy) -1-propanol	-	-	-	500
1-(2-Methoxy-1-methylethyl) 2-propanol	-	-	-	43
1,1'-oxybis-2-chloroethane	-	-	-	53
3,3-5-trimethylcyclohexene	-	-	-	460
Unknown	-	9,500	200	120

1-Data obtained from U.S. EPA analytical results: Data set EEIB 280 and 281 samples collected at American Chemical Service, Inc. and Griffith Landfill July 3, 1980.

2-Compounds 1-11 are priority pollutants confirmed by mass spectra and gas chromatographic retention time.

3-Compounds 12-39 are non-priority pollutants confirmed by computer library search and quantified according to standards.

4-K indicates lower detection limit.

5-Parenthesis () indicates the number of isomers present.

TABLE 6

U.S. EPA SAMPLING RESULTS  
SURVEILLANCE AND ANALYSIS DIVISION  
ENVIRONMENTAL EMERGENCY AND INVESTIGATIONS BRANCH  
AT AMERICAN CHEMICAL SERVICE, INC. AND GRIFFITH LANDFILL  
MAY 8-9, 1980  
(CONCENTRATION UNIT IN PPB)

	Soil Sample #1 (mg/g)	Soil Sample #2 (mg/g)	Water Sample #1 mg/l
Ca	3.8	K0.5	381
Mg	2.8	0.9	74.6
Na	K0.1	K0.1	195
Ag	K0.3	K0.3	11
Al	3,700	3,400	467
B	K8	K8	1,800
Be	0.2	0.2	K1
Ba	11	13	335
Cd	K0.1	K0.2	184
Co	4	2	427
Cr	11	8	254
Cu	13	9	117
Fe	9,100	7,600	10,400
Mn	370	55	8,550
Mo	6	6	57
Ni	9	5	54
Pb	14	15	282
Sn	15	K10	K100
Ti	88	74	13
V	12	11	34
Y	5	7	19
Zn	26	20	2,300
Total Hg	.049 mg/kg	.036 mg/kg	.8 ug/l
Total CN	K0.3 mg/kg	K.03 mg/kg	96 ug/l

Data obtained from U.S. EPA analytical results. Data set EEIB samples collected at American Chemical Service, Inc. and Griffith Landfill June 12, 1980.

1. K indicates lower detection limit.
2. Sample number correspond to those given in Table 5.



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TABLE 7

ECOLGY AND ENVIRONMENT, INC. WELL SAMPLING RESULTS  
ECOLGY AND ENVIRONMENT, INC. WELL SAMPLING DATA  
AMERICAN CHEMICAL SERVICE, INC. AND GRIFFITH LANDFILL  
GRIFFITH, INDIANA  
NOVEMBER 3, 1982

	Monitoring Well #1 (ppm)	Monitoring Well #2 (ppm)	Monitoring Well #3 (ppm)	Monitoring Well #4
1,2-Trans- dichloroethylene	-	34	-	-
Ethylbenzene	1.6	10	-	-
Toluene	16	35	-	-
Vinyl chloride	-	680 ppb	-	-
2,4-Dimethylphenol	-	33	-	-
Pentachlorophenol	-	36	-	-
Bis-(2-chloroethyl) ether	-	327	-	-
Benzene	24	29	-	-
1,1,1-Trichloroethane	-	1.1	-	-
Chloroethane	-	980	96	-

Data obtained from E&E analytical results for sampling at ACS November 3, 1982.

1. Well #4 was dry. A sample was not collected.

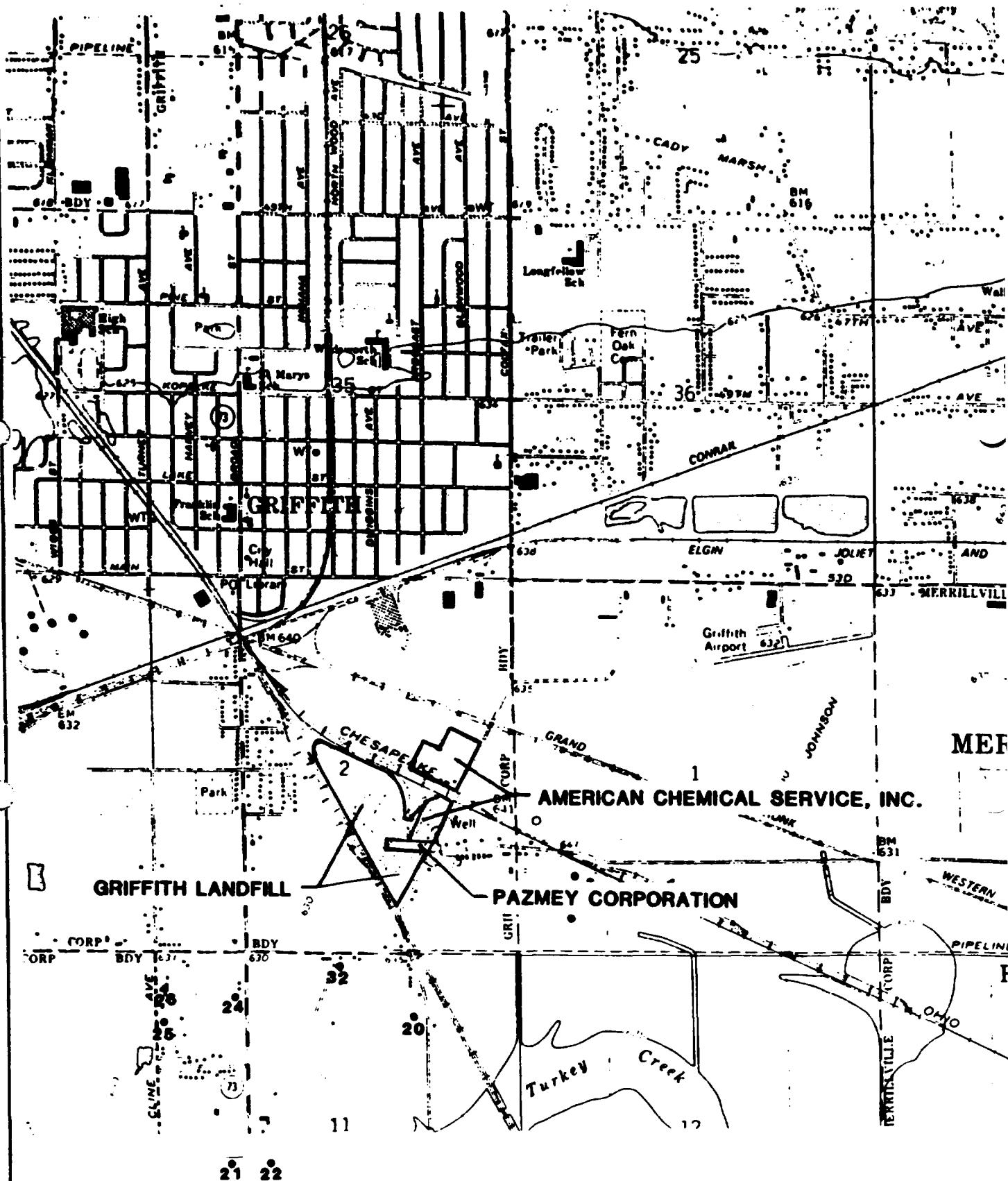


FIGURE 4 LOCATION OF WELLS SAMPLED IN LAKE COUNTY GROUNDWATER SURVEY

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TABLE 8 (continued)

INDIANA STATE BOARD OF HEALTH  
1981 LAKE COUNTY GROUNDWATER SURVEY RESULTS  
(PPM)

Well	Location	Turbidity	pH	CaCO <sub>3</sub> H	Mn	Fe	Mn	Ca	Mg	Na	K	Cl	SO <sub>4</sub>	PO <sub>4</sub>	Ba	Cl	Cr (TOT)	Pb	TOC	NO <sub>3</sub>	ODD
Jewell Rogers																					
712 E. Elm	15	0.6	7.8	200		200	.77	.03	50	18	7	.7	<5	18	<.09	.050	<.002	.010	<.010	2	<5
Salisbury Eng																					
1501 E. Main	16	10	7.6	322		344	1.4	.02	74	34	19	2.3	<5	34	.15	.260	<.002	<.010	<.010	2.2	<5
American Chemical	17	.5	7.6	312		396	.14	<.02	59	40	63	5.7	5	60	<.09	.080	<.002	<.010	<.010	1.0	<5
American Chemical	18	35	7.3	306		396	3.3	.03	58	39	65	6.8	<5	62	<.09	.110	<.002	.010	<.010	1.0	<5
Silvester Rader	19	30	7.3	398		312	3.7	.09	94	40	16	1.8	21	100	<.09	.150	<.002	.010	.020	1.5	<5
Kim Evans	20	20	7.3	474		388	2.6	.02	96	57	22	2.9	<5	130	<.09	.170	<.002	.010	<.010	1.0	<5
1902 Edison Ave.	21	25	7.3	790		456	3.3	.05	146	104	45	3.9	51	350	<.09	.070	<.002	.030	.010	1.2	<5
Howard Long	22	25	7.3	628		464	3.2	.03	122	79	26	3.1	<5	210	<.09	.070	<.002	.010	.010	1.5	<5
Glen Slaney																					
553 N. Raymond	23	5	7.6	224		252	.92	<.02	50	24	14	1.7	<5	5	<.09	.200	<.002	<.010	<.010	1.4	<5
Gose Home																					
1106 S. Broad	24	30	7.3	668		460	4.8	.03	123	87	37	3.9	<5	280	<.09	.050	<.002	.010	<.010	2.2	<5
Frank Rozick	25	8	7.6	240		168	1.1	.02	53	26	7	1.4	7	77	<.09	.040	<.002	.010	<.010	1.3	<5
John Price	26	6	7.7	236		120	.84	.08	54	24	12	.9	17	120	.15	.090	<.002	.010	<.010	1.9	<5
Douglas Waldron	27	8	7.7	204		224	1.1	<.02	51	18	12	1.2	<5	<5	.2	.130	<.002	.010	<.010	2.2	<5
Citizen's TV	28	5	7.8	228		316	1.0	<.02	49	26	37	2.5	<5	<5	.2	.190	<.002	.010	<.010	<1.0	<5
Lovin Home	29	2	7.8	156		168	.64	.02	38	15	6	.9	-	5	.15	.090	<.002	.010	<.010	<1.0	<5
Ernest Van Byssum																					
1818 E. Elm	30	10	7.6	228		244	2.9	.04	62	18	11	1.0	<5	<5	.2	.080	<.002	.020	<.010	3.1	<5
Bayworth Home	31	10	7.4	300		328	2.1	.02	75	27	13	1.4	<5	12	.05	.150	<.002	.010	<.010	4.0	<5
Arthur Begebus																					
1009 S. Wood	32	20	7.4	500		392	3.5	.03	96	63	26	3.5	<5	200	<.09	.140	<.002	.010	<.010	2.4	24

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TABLE 8  
INDIANA STATE BOARD OF HEALTH  
1981 LAKE COUNTY GROUNDWATER SURVEY RESULTS  
(PPM)

Well	Location	Turbidity	pH	CaCO <sub>3</sub> H	Mo	Fe	Mn	Cu	Mg	Na	K	Cl	SO <sub>4</sub>	PO <sub>4</sub>	Ba	Cd	Cr (TOT)	Pb	TOC	NO <sub>3</sub>	COO
Ramon Mathis Farm	1	7	7.3	229	123	1.8	.22	64	17	10	.8	15	93	.15	-	-	-	-	2.6	.2	<3
Pritchett	2	.1	7.7	164	76	<.05	.04	46	12	3	3.5	13	52	.09	-	-	-	-	2	4.2	<3
Crago	3	.7	7.3	204	140	.47	.29	54	17	4	1.2	6	60	<.09	-	-	-	-	6.4	1.2	18
Brown	4	2	7.5	126	72	1	.06	38	8	2	.2	8	53	.15	-	-	-	-	1.5	<.1	<3
Rosevear-Bowe	5	5	7.2	344	188	1.1	.89	93	27	3	2.6	14	130	.09	-	-	-	-	4.3	2.7	10
Rosevear-Tennant	6	1	7.1	400	276	.2	.29	114	28	11	30	28	77	<.09	-	-	-	-	4.7	<19	10
Rosevear-Barn	7	.5	7.0	560	302	.15	.80	166	39	7	20	32	180	<.09	-	-	-	-	7.5	<25	17
Ruber Sod Co.-																					
Milrant	8	9	6.8	468	348	2.2	.96	118	42	30	38	59	150	<.09	-	-	-	-	10.7	.8	22
Ruber Sod Co.-Home	9	25	6.8	466	344	5.	1.0	124	38	30	42	59	150	<.09	-	-	-	-	10.9	.9	25
Jerry Bayden	10	20	7.1	516	376	2.4	.05	121	52	8	1.6	9	140	<.09	-	-	-	-	1.2	<.1	<3
Ron Sherman	11	1	7.1	586	386	.31	.18	128	65	26	2.1	44	200	<.09	-	-	-	-	1.2	.5	<3
Henson Home	12	40	7.1	510	378	5.4	.06	106	61	12	1.9	<5	150	<.09	-	-	-	-	2.9	<.1	<3
Methery Home	13	2	7.7	8	372	.35	<.02	<2	<2	180	.2	<5	75	<.09	-	-	-	-	1.7	<.1	<3
Ray Creekmur	14	30	7.2	412	352	3.8	.04	83	50	14	1.7	7	86	<.09	-	-	-	-	2.9	<.1	<3

aquifer beneath the site separated by a clay layer. It has been suggested in the literature that the clay layer is impermeable and continuous. However this has not been confirmed. Existing information indicates that the majority of the private water wells in the vicinity of the site use the lower aquifer as their water source. If the clay layer is impervious and continuous, then any contamination would be limited to the upper aquifer in which case a smaller number of private wells would be in danger of contamination. Obviously, if the clay layer is not impervious and continuous then both the aquifer and corresponding wells are at risk. In order to investigate the contamination of these groundwater receptors, monitoring wells will be installed during the remedial investigation. In addition, a survey of residential well water quality will be conducted during the remedial investigation.

Surface water in the vicinity of the site is limited to the marsh west of ACS property and a creek that flows through the marsh. This creek flows to Turkey Creek which is approximately one mile south of the ACS property. Contamination of these bodies of surface water would be from runoff from the ACS site or surface leachate from waste disposal sites. Existing records do not indicate any leachate runoff during the past three years. At the present time there is no surface water quality data available.

#### 2.4.3 ENVIRONMENTAL AND PUBLIC HEALTH EFFECTS

Based on the available information, there appears to be a higher potential for public health effects than for environmental effects. This is based on the fact that there have been no visible environmental effects since the clay wall was installed around the north end of the ACS Off-site Containment Area during the early 1980's. Adverse environmental effects or surface leachate were not observed during this initial site visit.

The potential for environmental and public health effects due to surface water contamination is unknown. To date there is no data concerning surface water contamination.

There appears to be a higher potential for public health effects due to the contaminant migration found in Monitoring Well #3 located to the southeast of the Off-site Containment Area. The degree of potential is based on whether or not the upper or lower aquifers are contaminated and the relative number of wells that tap into each aquifer.

As part of the remedial investigation a risk assessment will be conducted to more accurately define the potential for environmental and public health effects.

## 2.5 DISCUSSION OF DATA GAPS

The review of available data has provided the following information concerning the American Chemical Services, Inc. site including the Griffith Landfill and Kapica Drum, Inc. (now Pazmay Corp.).

1. General information concerning geology and hydrogeology of the area from published studies and reports. Some site specific soils information is available from on-site soil borings and off-site well logs.
2. Specific information as to the types and quantities of wastes disposed of by ACS.
3. Non-specific information as the types and quantities of waste disposed of by Kapica Drum, Inc. Basically all that is known is that Kapica Drum, Inc. reconditioned drums containing hazardous and non-hazardous residues from ACS and other clients. It has been reported the drum residue and rinse water was disposed of on Kapica Drum property and ACS property. In addition this information is second hand since it was supplied by ACS, not Kapica Drum, Inc.
4. Specific information as to the types of waste disposed of by ACS at the Griffith Landfill. Non-specific information concerning the types of waste disposed of by Kapica Drum, Inc. at the Griffith Landfill. Again this is second hand information supplied by ACS.
5. Specific information concerning the location of known waste disposal on ACS property and areas of suspected soil contamination.
6. Non-specific information concerning the location of waste disposal on Griffith Landfill property.
7. Specific but limited data concerning on-site migration of hazardous wastes on ACS property. No data is available concerning hazardous waste migration from suspected disposal locations on Kapica Drum, Inc. or Griffith Landfill property.
8. Very limited data concerning waste migration outside of ACS, Kapica Drum, Inc. and Griffith Landfill property. In particular there is very little data concerning groundwater contamination.
9. Detailed information concerning property ownership was available however there is a question as to whether or not

part of the ACS Off-site Containment Area is on Griffith Landfill property.

The information needed to fill the gaps in the available data are as follows:

1. Concerning the on-site geology, information needed is:
  - a. Stratigraphy at the site determined by boreholes extending to bedrock.
  - b. Characterization of geotechnical, hydrological, and geological parameters of the soils and sediments on-site.
  - c. Confirmation of the given geological data including well logs and hydrogeologic data such as hydraulic conductivities and transmissivities.
  - d. Better definition of the water table configuration.
  - e. Better definition of the permeability, extent and continuity of the clay layer.
2. Specific information concerning the types and quantities of hazardous wastes disposed of by Kapica Drum, Inc. and accepted for disposal by the Griffith Landfill. In general more information concerning the hazardous waste activities of Kapica Drum, Inc. and Griffith Landfill is needed. A request for information similar to that sent to ACS by the U.S. EPA would provide useful information.
3. More detailed characterization of the waste on the ACS property as it exists now. All of the waste on ACS property has been buried 8-10 years. A more detailed characterization of all waste disposal sites is need from a health and safety standpoint and with regard to future remedial action alternatives. The details of the characterization will be contained in the Site Sampling and Analyses Plan.
4. More detailed evaluation of the extent of migration of hazardous wastes from the site. This includes the ACS, Kapica Drum, Inc. and Griffith Landfill property.
5. More detailed information concerning potential receptor contamination. Specifically, a survey of public water supplies should be conducted to determine those residents that use groundwater. It should also be determined which

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aquifer they use and selected wells should be sampled and analyzed for hazardous waste components.

## 2.6 INITIAL REMEDIAL MEASURES

Based on the review of available information and the initial site visit, initial remedial measures are not considered warranted at this time. In the early 80's a clay containment wall was built around the north end of the ACS Off-site Containment Area where leachate had been observed. There was evidence at the Off-site Containment Area of heavy ground vegetation from the previous growing season. No leachate or any other alarming conditions were observed at the Off-site Containment Area or any other of the known disposal sites during the site visit.

One item of concern is the detection of benzene and acetone in the drinking water of a homeowner near the ACS site. Samples of six other nearby wells were found to be free of contaminants. As part of the remedial investigation one of the first tasks will be to conduct a detailed drinking water contamination survey of the area around the site. However it is recommended that the water from the homeowner be sampled again to provide verification of the previous data. If the contaminants are found again, an alternate water supply should be provided and the drinking water contamination survey should be implemented immediately.

During December 1984, the Region V Technical Assistance Team (TAT) conducted a site assessment for the American Chemical Services, Inc. site. Their findings are in concurrence that initial remedial measures are not necessary at this time. In their report it was also recommended that the contaminated well water be sampled and analyzed again.

In summary the preparation of a Limited Feasibility Study Memo is not considered necessary at this time. If resampling of the O'Neil well confirms the contamination, then the Limited Feasibility Study Memo should be prepared detailing the drinking water contamination survey and the options for alternative drinking water supplies.



ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

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COI  
ELECT

AMERICAN CHMODAL

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2

*Type Spill*

AREA 3

*Cell pit*

AMERICAN CHEMICAL  
SERVICE, INC.

FOR DETAILED SITE, SEE  
S2 OF 2

*-June  
unrec'd*

*5 ft  
Bottom  
Pit 4 ft*

AREA 1

*#1  
Log pile  
T. 2x*

*#2  
Log pile  
Fire  
water*

*Trunks  
have 6 ft*

EAST WEST & SEC 2-35-9 1335.0'

*Bluffs*

AND

OHIO

630

1316.75

NORTH

RAILROAD